AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A blue phase liquid crystalline material comprising a mixture comprising at least one bimesogenic nematic compound and at least one chiral compound, wherein the material is capable of stable existence in the blue phase over a temperature range of at least 5°C, and the helical twisting power of the chiral compound multiplied by the proportion in which it is present in the mixture is in the range 3 to 5 μm^{-1}.

2. (Original) The blue phase liquid crystalline material according to claim 1, wherein the mixture comprises at least two bimesogenic nematic compounds and at least one chiral compound.

3. (Previously presented) The blue phase liquid crystalline material according to claim 1, wherein each bimesogenic nematic compound has the formula M-A-M', wherein A is a flexible chemical linkage and each of M and M'is a mesogen comprising at least 2 aromatic, heterocyclic or cycloaliphatic nuclei joined by a linkage which is more rigid than the flexible chemical linkage A.

4. (Currently amended) The blue phase liquid crystalline material according to claim 1, wherein the bimesogenic nematic compound includes at least one compound containing a chromophore.

5. (Previously presented) The blue phase liquid crystalline material according to claim 1, wherein the chiral compound is a chiral nematic compound.

6. (Previously presented) The blue phase liquid crystalline material according to claim1, wherein the chiral compound has a helical twisting power in the range 20 to 100μm^{-1}

7. (Previously presented) The blue phase liquid crystalline material according to claim 1, wherein the chiral compound forms 1 to 10% by weight of the liquid crystalline material.

8. (Canceled)

9. (Previously presented) The blue phase liquid crystalline material according to claim 1, wherein the material is capable of stable existence in the blue phase over a temperature range of at least 35 °C and which is capable of stable existence in the blue phase at a temperature below 35 °C.

10. (Currently amended) A process for the preparation of a blue phase liquid crystalline material which is capable of stable existence in the blue phase over a temperature range of at least 5 °C, the process comprising cooling a mixture of at least one bimesogenic <u>nematic</u> compound and at least one chiral compound from the isotropic state<u>, wherein the helical twisting power of the chiral compound multiplied by the proportion in which it is present in the mixture is in the range 3 to 5 μm^{-1}</u>.

11. (Currently amended) A process for the preparation of a blue phase liquid crystalline material which is capable of stable existence in the blue phase over a temperature range of at least 5 °C, the process comprising cooling a <u>mixture comprising a </u>bimesogenic chiral <u>nematic</u> compound from the isotropic state<u>, wherein the helical twisting power of the chiral compound multiplied by the proportion in which it is present in the mixture is in the range 3 to 5 μm^{-1}</u>.

12. (Previously presented) A blue phase liquid crystalline material produced by the process according to claim 10.

13. (Previously presented) An optical device comprising a layer of a blue phase liquid crystalline material according to claim 1 enclosed between opposed carrier plates, an AC voltage source operationally connected to the carrier plates and a light source positioned to impinge a beam of light onto the layer of blue phase liquid crystalline material in a direction substantially normal to the plates.

14. (Currently amended) A process of mirrorless lasing comprising subjecting a blue phase liquid crystalline material according to claim 1 to high energy pulsed radiation at a wavelength in the visible spectrum, wherein the blue phase liquid crystalline material comprises a mixture comprising at least one bimesogenic nematic compound and at least one chiral compound, and wherein the blue phase liquid crystalline material is capable of stable existence in the blue phase over a temperature range of at least 5 °C.

15. (Currently amended) A slotted monolithic optical waveguide comprising an electro-optically active material positioned in a slot between two portions of the waveguide and electrodes deployed above the slot to adjust the phase of light travelling in the waveguide, wherein the electro-optically active material is a blue phase liquid crystalline material according to claim 1.

16. (Previously presented) A blue phase liquid crystalline material produced by the process according to claim 11.